Vosoritide Clinical Study Data Demonstrates CXM is a Superior Biomarker of Endochondral Bone Growth

Kevin Larrimore, Thom Nguyen, Yulan Qi, George Jeha, and Stephen Zoog

BioMarin Pharmaceutical Inc., Novato, CA, USA

Objectives

- Vosoritide is a type V propeptide of procollagen type X, a Degradation fragment of collagen type X (X-X), which is released by active growth plate chondrocytes.
- Bone-specific alkaline phosphatase (BSAP) is an enzyme immunoassay to measure collagen type X NC1 domain
- C-terminal cross-linked telopeptide of collagen type II (CTXII) is a degradation fragment of collagen type II, released by active growth plate chondrocytes.
- Cross-linked C-telopeptide of type II collagen (CTXII) is a degradation fragment of type II collagen, released by active growth plate chondrocytes.

Methods

- Collagen type X (CXM) is a degradation fragment of collagen type X, released by active growth plate chondrocytes.
- Bone-specific alkaline phosphatase (BSAP) is an enzyme immunoassay to measure collagen type X NC1 domain.
- C-terminal cross-linked telopeptide of collagen type II (CTXII) is a degradation fragment of collagen type II, released by active growth plate chondrocytes.
- Cross-linked C-telopeptide of type II collagen (CTXII) is a degradation fragment of type II collagen, released by active growth plate chondrocytes.

Results

- In study 111-022, pediatric subjects with achondroplasia age 5–10 received vosoritide for 2.5, 7.5, 15, or 30 µg/kg/day for the first 6 months. After 6 months, the concentration for subjects in cohort 1 was increased to 15 µg/kg/day, resulting in increased AGV.
- The concentration of CXM in each sample was determined by interpolation using a standard calibration curve and a linear regression curve fit.
- The lower limit of quantitation was 0.8 ng/mL CTXII in neat urine.

Conclusions

- Overall, the data from vosoritide clinical studies suggest that CXM is superior to CTXII, PINP, and BSAP for monitoring changes in endochondral bone growth. Data from the phase 3 study clearly demonstrated increased serum CXM levels that correlated with increased AGV in vosoritide-treated, but not placebo-treated, subjects.

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References